



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/769,821

02/03/2004

Shunpei Yamazaki

740756-2705

9517

22204

7590

02/19/2010

NIXON PEABODY, LLP

401 9TH STREET, NW

SUITE 900

WASHINGTON, DC 20004-2128

EXAMINER

LIN, JAMES

ART UNIT

PAPER NUMBER

1792

MAIL DATE

DELIVERY MODE

02/19/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/769,821	Applicant(s) YAMAZAKI, SHUNPEI	
	Examiner Jimmy Lin	Art Unit 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 December 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-9 and 12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-9 and 12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>12/29/09</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/29/2009 has been entered.

Claim Objections

2. Claims 1, 2 and 4 are objected to because of the following informalities:

The recitation of “the set of electrodes line” (claim 1, line 12 and claim 4, line 14, respectively; emphasis added) should be amended to “the set of electrodes”.

The recitation of “the plurality of sets of electrodes line” (claim 2, line 11 and claim 5, line 14; emphasis added) should be amended to “the plurality of sets of electrodes”.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. Claims 1, 2, 4-9 and 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 2, 4 and 5 recite the limitation "the other electrode" in lines 9-10 for claims 1 and 2 and lines 11-12 for claims 4 and 5. There is insufficient antecedent basis for this limitation in the claim.

The recitation of “providing a distal portion of the one electrode of the set of electrodes being toward the other electrode of the set of electrodes” (claims 1 and 4) is indefinite because it is unclear as to the scope of the requirement of "being toward". The limitation seems to be grammatically incorrect and too vague for one to clearly identify the scope of the claims. For the purpose of this examination, the claims will be interpreted to be at least inclusive of one electrode being slanted towards or pointed towards the other electrode.

The recitation of “providing a distal portion of the one electrode of the plurality of sets of electrodes being toward the other electrode of the plurality of sets of electrodes” (claims 2 and 5) is indefinite for substantially the same reasons as discussed immediately above for claims 1 and 4.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyakawa (U.S. Patent No. 6,051,150, listed in the IDS filed 8/19/2008) in view of Kurihara et al. (U.S. Patent No. 5,368,897) and Babayan et al. (U.S. Publication No. 2002/0129902).

Miyakawa teaches a method of etching an ITO film of a liquid crystal display (LCD). The etching is performed at about atmospheric pressure (i.e., about 760 Torr) in a plasma treatment chamber (abstract). A reactive gas is discharged to region 16 in the direction of arrow B as shown in Fig. 5 (col. 6, line 59-col. 7, line 13). The plasma treatment means is provided inside the plasma treatment chamber (Figs. 1, 5, and 6).

Miyakawa teaches a plasma means, but does not explicitly that the plasma means has one set of electrodes, wherein one electrode surrounds the other electrode, providing a distal portion of the one electrode being slanted towards the other electrode and wherein the distal portion of the one electrode has a sharp angle. However, Kurihara teaches that it was well known to have used a plasma apparatus having one electrode 53 which surrounds another electrode 54. The distal portion of the one electrode is slanted toward other electrode and has a sharp angle shape (Fig. 13). Although the plasma apparatus of Kurihara was used in a deposition apparatus while the plasma apparatus of Miyakawa was used in an etching process, Babayan teaches that it was well known to have used a plasma apparatus for either etching or depositing [0006]-[0008]. The teachings of Babayan would have presented a recognition of equivalency in the prior art and

Art Unit: 1792

would have presented strong evidence of obviousness in substituting one plasma means for the other in a process of forming a plasma. The substitution of equivalents requires no express suggestion. See MPEP 2144.06.II. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have used the plasma means of Kurihara, as opposed to the plasma means of Miyakawa, with a reasonable expectation of success. The selection of something based on its known suitability for its intended use has been held to support a prima facie case of obviousness (MPEP 2144.07).

Claim 4: Miyakawa teaches that a resist mask can be formed over the ITO film (col. 5, line 64-col. 6, line 4).

Claim 6: Miyakawa does not explicitly teach that the size of the LCD substrate has a size of 1,000 x 1,200 mm² or more. However, Miyakawa recognizes that the size of LCD panels is continually increasing in size and that the method of etching accommodates for the continual increase (col. 9, lines 21-24). One of ordinary skill in the art would have recognized that the process of Miyakawa would have provided an operable method for etching an ITO film at these increased sizes with predictable results. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have performed the ITO etching method of Miyakawa on any substrate size, including those within the claimed range, with a reasonable expectation of success.

6. Claims 2, 5, 7-8, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyakawa '150 in view of Kurihara '897 and Babayan '902 as applied to claims 1 and 4 above, and further in view of Inoue (JP 07-024579, listed in the IDS filed 2/23/2005).

Miyakawa and Kurihara do not explicitly teach using a plurality of sets of electrodes for generating plasma. However, Inoue that it was well known to have used a plurality of plasma jets to etch multiple substrates. The apparatus comprises of a plurality of plasma generating electrodes, which can be moved in the X and Y directions (abstract; Fig. 1). The processing of multiple substrates would have decreased production time and reduced costs. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have used a plurality of sets of electrodes to process multiple substrates of Miyakawa with a reasonable

Art Unit: 1792

expectation of success. One would have been motivated to do so in order to have improved process efficiency and reduce operating costs.

Claims 7-8: Inoue teaches that the plasma treatment means can scan the substrate in the X and Y directions (Fig. 1).

Claim 12: Inoue teaches that the plasma treatment means can move along a rail (Fig. 1).

7. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyakawa '150 in view of Kurihara '897 and Babayan '902 as applied to claims 1 and 4 above, and further in view of Seki (JP 11-340129, listed in the IDS filed 2/23/2005).

Miyakawa does not explicitly teach that the resist mask is formed by use of liquid droplet jetting means. In fact, Miyakawa is completely silent as to how the resist film is formed.

Accordingly, Seki teaches that a resist material can be dissolved in a solvent and deposited onto a substrate via an ink jet method. This method can provide a manufacturing process at low costs (abstract). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have formed the resist mask of Miyakawa using an ink jet method as the particular resist film forming method with a reasonable expectation of success. One would have been motivated to do so in order to have used a low cost manufacturing method.

Double Patenting

8. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned

Art Unit: 1792

with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

9. Claims 1, 4 and 6 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 5, 10, 15, 19 and 23 of U.S. Patent No. 7,189,654 in view of Kurihara '897 and Babayan '902.

The claims of '654 do not require providing one electrode of the set of electrodes which surrounds the other electrode of the set of electrodes and wherein a distal portion of each of the other electrode of the set of electrodes has a sharp angle shape. However, Kurihara teaches that it was well known to have used a plasma apparatus having one electrode 53 which surrounds another electrode 54. The distal portion of the one electrode is slanted toward other electrode and has a sharp angle shape (Fig. 13). Although the plasma apparatus of Kurihara was used in a deposition apparatus while the plasma apparatus of '654 was used in an etching process, Babayan teaches that it was well known to have used a plasma apparatus for either etching or depositing [0006]-[0008]. Thus, Babayan would have presented a recognition of equivalency in the prior art and would have presented strong evidence of obviousness in substituting one plasma means for the other in a process of forming a plasma. The substitution of equivalents requires no express suggestion. See MPEP 2144.06.II. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have used the plasma means of Kurihara, as opposed to the plasma means of '654, with a reasonable expectation of success. The selection of something based on its known suitability for its intended use has been held to support a prima facie case of obviousness (MPEP 2144.07).

Claim 6: '654 does not require that the substrate has a size of 1,000 x 1,200 mm² or more. However, the size of the substrate is merely a design choice and can be altered merely for aesthetic purposes. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have modified the substrate size, including to a size within the claimed range, with a reasonable expectation of success and with predictable results.

Art Unit: 1792

10. Claims 2, 5, 7-8, and 12 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 5, 10, 15, 19 and 23 of U.S. Patent No. 7,189,654 in view of Kurihara '897 and Babayan '902 as applied to claims 1 and 4 above, and further in view of Inoue '579.

'654 does not require the use of a plurality of sets of electrodes. However, Inoue teaches a method of generating plasma in restricted regions (abstract). The apparatus comprises of a plurality of plasma generating electrodes, which are moved in the X and Y directions such that an etching pattern can be formed (Fig. 1). Because Inoue teaches that such a method was operable for selectively plasma etching a substrate, it would have been obvious to one of ordinary skill in the art at the time of invention to have applied the plasma etching apparatus of Inoue to the plasma etching method of '654 with a reasonable expectation of success. The selection of something based on its known suitability for its intended use has been held to support a prima facie case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945).

11. Claim 9 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 5, 10, 15, 19 and 23 of U.S. Patent No. 7,189,654 in view of Kurihara '897 and Babayan '902 as applied to claims 1 and 4 above, and further in view of Seki '129.

'654 does not require the resist mask to be formed by use of liquid droplet jetting means. However, Seki teaches that a resist material can be dissolved in a solvent and deposited onto a substrate via an ink jet method. This method can provide a manufacturing process at low costs (abstract). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have formed the resist mask of '654 using an ink jet method as the particular resist film forming method with a reasonable expectation of success. One would have been motivated to do so in order to have used a low cost manufacturing method.

Response to Arguments

12. Applicant's arguments, see pg. 6, filed 12/29/2009, with respect to claims 1, 2, 6-9 and 12 have been fully considered and are persuasive. The 35 U.S.C. 112, second paragraph rejection of the claims has been withdrawn.

13. Applicant's arguments filed 12/29/2009 have been fully considered but they are not persuasive.

Applicant argues on pg. 6 that the amendments to the claims obviate the double patenting rejections of the claims. However, the claims of the present invention are still obvious over the '654 patent in view of Kurihara. See above rejections for details.

Applicant argues on pg. 10-13 that Miyakawa, Yara, Koinuma, Inoue, Seki and Datta fail to disclose, teach, or suggest a manufacturing method of a display device including features of providing a distal portion of the one electrode of the set of electrodes has a sharp angle shape. However, Kurihara teaches that it was well known to have used a plasma apparatus having one electrode 53 which surrounds another electrode 54. The distal portion of the one electrode is slanted toward other electrode and has a sharp angle shape (Fig. 13). Although the plasma apparatus of Kurihara was used in a deposition apparatus while the plasma apparatus of Miyakawa was used in an etching process, Babayan teaches that it was well known to have used a plasma apparatus for either etching or depositing [0006]-[0008]. The teachings of Babayan would have presented a recognition of equivalency in the prior art and would have presented strong evidence of obviousness in substituting one plasma means for the other in a process of forming a plasma. The teachings of Kurihara and Babayan have been incorporated into the rejections in view of the newly added amendments.

As to Applicant arguments on pg. 13 directed to dependent claims 6-9 and 12 as being patentable due to their dependency to claims 1, 2, 4 and 5, the rejection of claims 1, 2, 4 and 5 are being maintained over the teachings of Miyakawa and Kurihara. Applicants have not separately argued the patentability of the dependent claims. Thus, claims 6-9 and 12 are also being rejected.

Art Unit: 1792

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jimmy Lin whose telephone number is (571)272-8902. The examiner can normally be reached on Monday thru Friday 8AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jimmy Lin/
Examiner, Art Unit 1792

/Timothy H Meeks/
Supervisory Patent Examiner, Art Unit
1792